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Date: October 15, 2001 By: Kay L. Gaviglio

PATENT
Docket No. GC362-2D1US

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of W. S. Borneman et al.)
)
Serial No.: Unknown)
)
Filed: Herewith)
)

Group Art Unit: Unassigned

Examiner: Unassigned

For: **ESTERASE ENZYMES, DNA ENCODING ESTERASE ENZYMES AND VECTORS AND HOST CELLS INCORPORATING SAME**

PRELIMINARY AMENDMENT

Commissioner for Patents
Washington, D.C. 20231

Sir:

Prior to issuing an Office Action on the merits, please enter the following preliminary amendment.

IN THE SPECIFICATION:

At page 1, before BACKGROUND OF THE INVENTION insert,

- - This application is a divisional application of application serial number 08/952,445 filed November 18, 1997, which is a continuation application of application serial number 08/722,713 filed September 30, 1996, now abandoned. - -

IN THE CLAIMS:

Cancel claims 1 – 22, 24, 31 and 32 without prejudice.

Please replace the following original claims with a clean copy of said claims as amended. A marked-up version of said amended claims is provided on a separate sheet attached hereto along with a clean set of pending claims.

23. (Once amended) An esterase produced by a method comprising the steps of:

(a) transforming a suitable microbial host cell with a vector comprising,

(i) a first DNA encoding an esterase comprising an amino acid sequence disclosed in SEQ ID NO: 28 or SEQ ID NO: 26, or

(ii) a second DNA capable of hybridizing under standard stringency conditions with a DNA comprising at least 400 nucleotides of the DNA sequence illustrated in SEQ ID NO: 29, wherein the second DNA encodes a protein having esterolytic activity;

(b) cultivating said transformed host cell under conditions suitable for said host cell to produce an esterase; and

(c) separating the produced esterase from said host cell.

25.(Once amended) A feed supplement comprising the esterase produced by the method according to claim 23.

26(Once amended) A process of treating fabric, yarn, or textiles comprising contacting said fabric, yarn or textile with the esterase produced according to claim 23.

27.(Once amended) An isolated esterase comprising the amino acid sequence disclosed in SEQ ID NO: 28 or SEQ ID NO: 26.

28.(Once amended) The isolated esterase according to claim 27, wherein said esterase is from a filamentous fungus, bacteria or yeast.

29.(Once amended) The isolated esterase according to claim 27, wherein said esterase is derived from *Aspergillus*.

30.(Once amended) The isolated esterase according to claim 29, wherein said esterase is derived from *Aspergillus niger*.

Please add the following new claims.

33. An isolated esterase derived from *Aspergillus* having a molecular weight about 38kD as measured by SDS-PAGE.

34. The esterase of claim 27 having the amino acid sequence disclosed in SEQ ID NO: 28.

35. The method according to claim 23, wherein the host cell is selected from the group consisting of *Bacillus spp.*, *Trichoderma spp.,* and *Aspergillus spp.*

36. The method according to claim 35, wherein the host cell is *Aspergillus niger.*

37. The method according to claim 35, wherein the host cell is a *Bacillus.*

38. An animal feed comprising the esterase of claim 27.

39. A process of treating a fabric, yarn or textile comprising contacting said fabric, yarn or textile with the esterase of claim 27.

REMARKS

This application is being filed as a divisional application of application serial number 08/952,445 filed November 18, 1997. In the office action dated May 28, 1999, paper number 8, of the parent application, Applicants were given a two-way restriction requirement. This application is directed to the claims designated as Group II; claims 23, 25 - 32, drawn to an esterase and use thereof. With entry of this amendment, claims 23, 25 – 30 and 33 – 39 are pending; claims 23, 25 – 30 are amended, and claims 33 – 39 are new. Claims 1 – 22, 24, 31 and 32 are canceled. No new matter has been introduced by the present amendment.

Claim 23 has been rewritten as an independent claim incorporating the limitations of original claims 7, 10, 21 and 24. Dependency has been changed for claims 25 and 26, and the term "enzyme" has been replaced with "esterase". Claim 27 has been rewritten as an independent claim reciting the sequence identifiers SEQ ID NOs: 26 and 28. SEQ ID NO: 28 illustrates the amino acid sequence of the esterase isolated from *Aspergillus niger* including the signal sequence. SEQ ID NO: 26 is a 197 amino acid sequence fragment of SEQ ID NO: 28. This fragment does not include the signal sequence. The preamble of claims 27 – 30 has been modified to include the term "isolated". Support for this term can be found throughout the specification including at page 9, lines 15 and 34.

New independent claim 33 corresponds to original claim 31. However, Applicants have added the limitation that the molecular weight is determined by SDS-PAGE. Claim 34 is dependent on claim 27 and defines the esterase as comprising the amino acid sequence illustrated in SEQ ID NO: 28. Claims 35 - 37 further define the microbial host cell, and support is found at page 7, lines 11 – 13. Claim 38 is directed to an animal feed comprising the esterase of claim 27, and support is found at least in original claim 25. Claim 39 concerns a process of treating a fabric, yarn or textile comprising contacting the same with the esterase of claim 27, and support is found in original claim 26.

Applicants contend the pending claims are patentable and allowance of claims 23, 25 –30 and 33 – 39 is kindly solicited. If in the opinion of the Examiner a telephone conference would expedite the prosecution of the subject application, the Examiner is encouraged to call the undersigned at (650) 846-7620.

Respectfully submitted,

Date: October 15, 2001

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Enclosure: Marked-up version of the amended claims
Clean claim set

MARKED-UP VERSION OF AMENDED CLAIMS

23. (Once amended) **[A purified]** **An** esterase produced by **[the host cell of claims 18 or 19]** **a method comprising the steps of:**

(a) transforming a suitable microbial host cell with a vector comprising,

(I) a first DNA encoding an esterase comprising an amino acid sequence disclosed in SEQ ID NO: 28 or SEQ ID NO: 26, or

(II) a second DNA capable of hybridizing under standard stringency conditions with a DNA comprising at least 400 nucleotides of the DNA sequence illustrated in SEQ ID NO: 29, wherein the second DNA encodes a protein having esterolytic activity;

(b) cultivating said transformed host cell under conditions suitable for said host cell to produce an esterase; and

(c) separating the produced esterase from said host cell.

25.(Once amended) A feed supplement comprising the **[enzyme]** **esterase** produced by the method according to **[claim 24]** **claim 23**.

26(Once amended) A process of treating fabric, yarn, or textiles **[by]** **comprising** contacting said fabric, yarn or textile with the **[enzyme]** **esterase** produced according to **[claim 24]** **claim 23**.

27.(Once amended) **[A purified]** **An isolated** esterase comprising the amino acid sequence **[provided in Fig.2 or a derivative thereof]** **disclosed in SEQ ID NO: 28 or SEQ ID NO: 26**.

28.(Once amended) The **[purified]** **isolated** esterase according to claim 27, wherein said esterase is from a filamentous fungus, bacteria or yeast.

29.(Once amended) The **[purified]** **isolated** esterase according to claim 27, wherein said esterase is derived from *Aspergillus*.

30.(Once amended) The **[purified]** **isolated** esterase according to claim 29, wherein said esterase is derived from *Aspergillus niger*.

Clean Claim Set

23. (Once amended) An esterase produced by a method comprising the steps of:

(a) transforming a suitable microbial host cell with a vector comprising,

(I) a first DNA encoding an esterase comprising an amino acid sequence disclosed in SEQ ID NO: 28 or SEQ ID NO: 26, or

(II) a second DNA capable of hybridizing under standard stringency conditions with a DNA comprising at least 400 nucleotides of the DNA sequence illustrated in SEQ ID NO: 29 wherein the second DNA encodes a protein having esterolytic activity;

(b) cultivating said transformed host cell under conditions suitable for said host cell to produce an esterase; and

(c) separating the produced esterase from said host cell.

25.(Once amended) A feed supplement comprising the esterase produced by the method according to claim 23.

26(Once amended) A process of treating fabric, yarn, or textiles comprising contacting said fabric, yarn or textile with the esterase produced according to claim 23.

27.(Once amended) An isolated esterase comprising the amino acid sequence disclosed in SEQ ID NO: 28 or SEQ ID NO: 26.

28.(Once amended) The isolated esterase according to claim 27, wherein said esterase is from a filamentous fungus, bacteria or yeast.

29.(Once amended) The isolated esterase according to claim 27, wherein said esterase is derived from *Aspergillus*.

30.(Once amended) The isolated esterase according to claim 29, wherein said esterase is derived from *Aspergillus niger*.

33.(New) An isolated esterase having a molecular weight about 38kD as measured by SDS-PAGE and derived from *Aspergillus*.

34.(New) The esterase of claim 27 having the amino acid sequence disclosed in SEQ ID NO: 28.

35.(New) The method according to claim 23, wherein the host cell is selected from the group consisting of *Bacillus spp.*, *Trichoderma spp.,* and *Aspergillus spp.*

36. (New) The method according to claim 35, wherein the host cell is *Aspergillus niger.*

37. (New) The method according to claim 35, wherein the host cell is a *Bacillus.*

38.(New) An animal feed comprising the esterase of claim 27.

39.(New) A process of treating a fabric, yarn or textile comprising contacting said fabric, yarn or textile with the esterase of claim 27.